PATENT OF INVENTION

LARGE SPECTRUM ICING CONDITIONS DETECTOR FOR OPTIMIZATION OF AIRCRAFT SAFETY

Applicant: AUXITROL SA (FR)

Inventor(s):

ABSTRACT

The invention proposes an ice detector for detecting ice accretion on the surface of a structure subject to icing, said ice detector comprising a sensing element protruding into the airflow and supported relatively to a surface of said object by a strut upon which it is mounted, characterized in that said sensing element has an evolutionary profile along the longitudinal axis adapted to the spectral distribution of the icing conditions. Said sensing element is adapted to the profile of ice distribution on the aircraft and allows detection on a large spectrum of droplet sizes.

In a preferred embodiment, said strut comprises a deflector to increase the local concentration of the droplets to provide a faster detection of ice accretion and to compensate evaporation effect on small droplets.

Said ice detector provides advantageously a signal indicating the severity of the icing conditions in which said structure is immersed, said severity of the icing conditions being determined by the speed at which ice

accumulates through analysis of the slope of the variation of the sensing element oscillation frequency.

Power consumption during de-icing phases of the ice detector is advantageously reduced by using a first power supply dedicated to the strut and maintained during the whole duration of icing condition detection, and by using a second power supply to de-ice the sensing element.